TITLE: Evaluation of a specialist perinatal mental health service

Running title: Perinatal mental health services

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Abstract

Background: Specialist community perinatal mental health (PMH) teams offer specialist psychiatric and psychological assessments and care for women with complex or severe mental health problems during the perinatal period. This paper reports on the findings from an evaluation of a Specialist PMH service.

Methods: The evaluation used a longitudinal mixed-methods design with repeated measures. Quantitative data collection was facilitated through Patient reported outcome measures (PROMs) on admission and discharge from 40 women who attended for specialist PMH treatment. Qualitative data was collected through focus group discussions with practitioners providing the service. Within-group *t*-tests were used to test for significant differences in mental health and wellbeing (α = 0.05) between time points. Thematic analysis was undertaken on qualitative data.

Results: Patients showed statistically significant improvements, with large effect sizes, in mean scores across all outcome measures from the first to the last appointment. Key themes in terms of enabling effective service delivery were identified as consistency in service priorities during times of change, team working, breaking down barriers, and seeing what the service can achieve. Inadequate funding, recruitment and training issues, and having to find new ways of working were perceived as challenges to effective service delivery.

Conclusions: The findings illustrate that women can now access appropriate, high quality specialist PMH care and are provided with a service that clearly focuses upon recovery. From the perspectives of practitioners within the specialist PMH team, effectiveness was contingent on strong leadership and consistency, alongside team working and collaboration.

Keywords: Perinatal, mental health, pregnancy, postpartum, services, evaluation.

INTRODUCTION

Perinatal Mental Illness (PMI) spans the spectrum of pregnancy and childbirth and is now acknowledged as a significant global problem and an important public health issue[1]. Untreated Perinatal Mental Health (PMH) problems can have serious and long-lasting effects on a woman's well-being, her experience of pregnancy and motherhood, the bonding and attachment relationship, the cognitive and emotional well-being of the child, the wellbeing of other family members, and the couple's relationship[2]. PMH problems also have a significant economic impact[3]. Consequently, timely treatment is critical, which includes pharmacological and psychological therapy as well as social support[4]. The Five-Year Forward View for Mental Health[5] is clear in its objective that Specialist PMH services should be available for all women and their families who need them. The term 'Specialist PMH services' refers to both Specialist PMH service community teams, as well as inpatient mother and baby units.

Specialist community PMH teams offer specialist psychiatric and psychological assessments and care for women with complex or severe mental health problems during the perinatal period. They also provide preconception advice for women with a complex or severe mental health problem (current or past) who are planning a pregnancy[6].

Specialist PMH service provision is inconsistent across the United Kingdom (UK); NHS England are investing in the development of specialist services in order to address gaps in provision. In March 2018, the opportunity to apply for a 2nd wave of community PMH funding was announced by NHS England. This opportunity enabled pregnant and new mothers experiencing complex or severe mental illness to access specialist PMH community services in every part of the country by April 2019.

Of the 35 sites awarded funding, one of them was a Trust in the North East of England. The Trust has extensive experience of specialist PMH service provision. The funding facilitated enhancement of an existing specialist PMH service, and expansion of the service into an area where no such service existed, the expansion involved two further NHS Trusts. As part of the bid, additional funding was ringfenced for an external evaluation. The evaluation was designed to demonstrate that the new and enhanced service met the national ambitions for

access and was clinically effective. The use of patient recorded outcome measures (PROMs) was critical to support delivery of care and service improvement across the new service, and the evaluation was considered to be the first step to embedding PROMs in practice across all Trusts[7]. The aim of the evaluation was to assess the impact of the service to inform decision making for ongoing sustainability. Impact was captured by measuring the changes in women's health and wellbeing using a range of outcomes and measures. Interviews with members of the specialist PMH team were conducted to explore the contributors and challenges to effective service delivery.

METHOD AND MATERIALS

The study used a longitudinal mixed methods design with repeated measures. Quantitative data collection was facilitated through the use of a number of evidence-based measures to collect information from women about their mental health and wellbeing on admission to the PMH service (Timepoint 1) and discharge from the service (Timepoint 2). These measures were, the Clinical Outcomes in Routine Evaluation version 10 (CORE-10)[8], Edinburgh Postnatal Depression Scale (EPDS)[9], Recovering Quality of Life version 10 (ReQoL 10)[10], and the Patient Rated Outcome and Experience Measure (Perinatal POEM)[11]. Quantitative data collection using the measures described above embedded into booklets commenced in January 2019 and was completed by end of February 2020. Focus group discussions with practitioners providing the service took place between June 2019 and October 2019.

During the timeframe of the study, 200 women were referred and discharged from the perinatal team. In total, 97 booklets were returned to the team. Forty booklets were completed at Timepoint 1 (T1) and Timepoint 2 (T2), and these 40 have been used to show the progression and the trajectory of women's health and wellbeing from admission to the service through to discharge. The average time from assessment to discharge was 22 1/2 weeks, but overall, this ranged from 4 weeks to 49 weeks. **Table 1** provides a breakdown of the characteristics of women completing the booklets and measures by age, employment and relationship status and ethnic origin, and **Table 2** provides referral details.

Table 1: Demographics

	Women who completed booklets at both time points (N=40)
Age	
Mean age	27.3 years (15-42)
15-24 years	16 (40.0%)
25-34 years	14 (35.0%)
35-44 years	9 (22.5%)
No information	1 (2.5)
Employment	
Employed	13 (32.5%)
Unemployed*	13 (32.5%)
Home-maker	4 (10%)
Student	1 (2.5%)
No information	9 (22.5%)
Relationship	
Married	13 (32.5%)
Living with partner	11 (27.5%)
Single	9 (22.5%)
Other	2 (5%)
No information	5 (12.5%)
Ethnic origin	
White British	37 (92.5%)
Other	2 (5%)
No information	1 (2.5%)

* It is likely that many of the women classified as 'unemployed' were home-makers and/or looking after their children full-time.

Table 2: Referral information

	Women who completed booklets at both time points (N=40)
NHS Trust	
Trust 1	29 (72.5%)
Trust 2	6 (15%)
Trust 3	5 (12.5%)
Other/no information	-
Stage	
Pre-conception	2 (5%)
Pregnancy	22 (55%)
Postnatal	13 (32.5%)
No information	3 (7.5%)
Referrer	
Midwife	17 (42.5%)
Health visitor	2 (5%)

GP	4 (10%)
Primary care MH services	4 (10%)
Secondary care MH services	7 (17.5%)
MH response team	2 (5%)
Other	1 (2.5%)
No information	3 (7.5%)
Diagnosis (confirmed/suspected)	
Anxiety	9 (22.5%)
Depression	5 (12.5%)
Anxiety and depression	10 (25%)
PTSD	2 (5%)
Bipolar disorder	1 (2.5%)
Personality disorder	5 (12.5%)
Eating disorder	1 (2.5%)
Other	1 (2.5%)
No information	6 (15%)

Data collection: Quantitative (**Outcome measures)**

Patient reported outcome measures (PROMs) are standardised, validated questionnaires completed by patients to measure their perception of their symptoms and wellbeing. Patients complete PROMs by rating their health in response to individual questions. These responses are scored (from 0 to 4, for example) according to the level of problem severity. When PROMs are analysed, the individual ratings are combined to produce an overall score to represent an underlying phenomenon or "construct," such as "perceived level of pain" or anxiety. The analysis of PROMs tends to focus on the amount of change that has occurred in the patients' condition or their general health related quality of life, as represented by a change in PROM score following an intervention.

This work included careful discussion and decision making regarding the patient group, and 2 PROMS were identified as suitable for use within the service; the Clinical outcomes in routine evaluation measure (CORE-10) and the Edinburgh Postnatal Depression Scale (EPDS). The Recovering Quality of Life Scale (ReQol-10) is a Quality of Life PROM that had already been implemented by the organisation and therefore this measure, and the Perinatal Patient Outcome and Experience Measure (Perinatal POEM) were included in the evaluation process.

The CORE-10 is a 10-item PROM that measures psychological symptoms including commonly experienced symptoms of anxiety and depression and associated aspects of life and social functioning. In addition, there is a key item on risk to self. A higher score on the

CORE-10 indicates higher psychological distress/presence of symptoms related to mental illness. A score of 0-5 indicates a healthy range, >5 to 10 low level problems, >10 to 15 mild psychological distress, >15 to 20 moderate distress, >20 to 25 moderately severe, and >25 to 40, severe psychological distress.

The EPDS is a 10-item screening tool used for identifying symptoms of perinatal depression and anxiety by emotional experiences over the past seven days. The EPDS was conceived as a measure of depression but now is recognised to assess both depressions and anxiety. A higher score on the EPDS indicates higher psychological distress/presence of symptoms related to mental illness. The cut-off of 13 or more is used when reporting on probable major depression in postnatal English-speaking women, and 15 or more when reporting on antenatal English-speaking women[12].

The ReQol-10 has been developed to assess the quality of life for people with different mental health conditions and consists of 10 mental health related questions in addition to 1 question relating to physical health. A higher score within the ReQol indicates a better quality of life. A ReQoL-10 score between 0 and 24 is considered as falling within the clinical range. A score of 25 and above is considered as falling within the range of the general population. Analysis showed a statistically significant improvement in the mean total ReQol score at beginning of treatment point and end of treatment point.

The Perinatal POEM, a tool recommended by NHS England, can be useful in supporting service improvement and captures satisfaction over time. It is recommended for evaluation of perinatal services in both Mother and Baby Units (MBUs) and community teams. It has been selected by the Royal College of Psychiatry's Centre for Quality Improvement (CCQI) as a continuous routine evaluation tool, to collate feedback from patients and families[7].

Data collection: Qualitative

To understand more about the contributors and challenges to service delivery, data were collected from specialist PMH team using Focus Group Discussions (FGDs). This included PMH nurses, clinical leads, therapists, nursery nurses, social workers, and occupational therapists. Focus Group Discussions are suited to exploring professional, care and service issues by the promotion of a discussion and the exchange of views and experiences. They facilitate an illuminative, evaluative process and are often used in health-care research to

explore complex issues[13]. Practitioners were identified in discussion with the PMH service lead for each area. Data collection took place on NHS premises and was guided by a schedule designed in collaboration with the advisory group. Consent forms were issued prior to data collection. Two members of the team undertook the group interviews. Two FGDs were conducted, with 14 practitioners contributing. Interviews were recorded using a digital recorder and transcribed by an accurate, confidential, secure, reliable and professional transcription organisation.

Data analysis: Quantitative

Questionnaire data was analysed statistically using SPSS. Demographic data, and information about pregnancy, and the referral process were analysed descriptively and summarised. The changes in outcome measures over the two time points were analysed for the 40 participants who completed questionnaires at time point 1 (assessment) and time point 2 (discharge) using the within-subjects *t*-test (α = 0.05).

Data analysis: Qualitative

Analysis of the qualitative data focused upon understanding the contributors and challenges to delivering an effective service from the perspective of the PMH providers. The objective was to understand the aspects that worked well, and to look at areas for improvement. A thematic analysis[14] was used to identify key themes and sub-themes. Analysis was carried out by 2 researchers (CJ, JW), who undertook this process individually, each identifying concepts and then bringing them together for discussion. Individual concepts were found to be relatively comparable. Data were searched to find repeated patterns of meaning. Labels were applied to important features within the data which were relevant to the overall questions, codes were used to capture relevant concepts from the labelling process and to construct relevant categories. Themes emerged from categories; once a meaningful essence was identified within each category in relation to delivering an effective service.

RESULTS

Quantitative

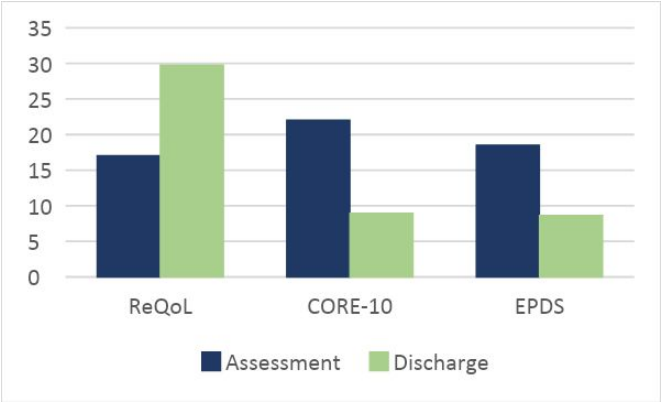
Within-group *t*-tests for the outcome data for the 40 participants who completed both time points showed that all changes in mean scores are statistically significant (**Table 3**). Figure 1 shows the changes in mean score across the range of outcome measures used within this evaluation. Patients showed statistically significant improvements, with large effect sizes, in mean scores across all outcome measures from the first to the last appointment.

The POEM was completed by 39 women. Overall, their responses were very positive about their experiences with the specialist service. The POEM data indicates that women were slightly less positive about getting help quickly after a referral, PMH providers communication with others involved in their care, assistance with confidence when caring for their baby, and being provided with sufficient information. However, the vast majority of women responded positively even to these questions. Women chose either 'agree' or 'strongly agree' (or 'disagree' or 'strongly disagree' in the case of negatively worded questions) in response to all questions, with the exception of getting help quickly enough after referral; two women felt that they did not receive help quickly enough. As part of the POEM women also self-assessed their mental health before and after engagement with the service. Almost all women said that their mental health had improved.

Table 3:

	N	Mean (SD) TP1	Mean (SD) TP2	Mean change (SD)	*t*	df	*p*	Cohen's *d*
ReQoL	40	17.03 (7.557)	29.78 (6.154)	-12.75 (8.530)	-9.454	39	< .001	-1.49
CORE-10	39	22.05 (7.857)	8.95 (5.947)	13.103 (8.651)	9.459	38	< .001	1.51
EPDS	40	18.53 (6.251)	8.65 (4.441)	9.875 (6.921)	9.023	39	< .001	1.43

Figure 1: Changes in mean scores for outcome measures



Qualitative

Key themes in relation to contributors to effective service delivery were;

- Consistency in service priorities during times of change
- The value of team working
- Breaking down barriers
- Seeing what the service can achieve

Each theme is discussed in detail below and supported by a narrative.

Consistency in service priorities during times of change: Data illustrates how a consistent message about the priorities of the service, during times of transition, can help to relieve the stress associated with change. There was a consistent message in relation to putting women first, and giving women the time that they require, from the existing practitioners. Through these consistent messages, new practitioners were able to find their direction, and find some solid ground in order to understand and appreciate their service priorities;

> *And I think by this time, you know, we were all working to capacity, we want to deliver quality, not quantity. We want to be a service that cares for women and families, urm. (Int 1)*

> *I think that's because there's no time limit on, you're not set where in a community mental health team you're not like 45 minutes, an hour (agreement in the room) and that's it. Whereas here, if something needs an hour and half, needs two hours you're able to give that to the patient. Your sort of needs led really. (Int 2)*

The value of team working: Data illustrates the value of team working. Team working ensures excellent service for women and helps the service to be successful in delivering the objective of making a difference:

> *Yeah I think as a new starter, everything was new to me and having to remember everything, erm, I think the MDT was really important, erm,*

meeting with really experienced staff, but what was also nice was, if I didn't know what locality ...the GPs in that area, I felt its ok to say that as everyone else is saying it [everyone laughs], so I never felt stupid, I was always able to ask questions and it just felt right. (Int 1)

I think everyone just helps each other out. I think that's a massive positive throughout all of this, there's always somebody who is willing to sit with you, talk to you and help out, no matter how busy they are really. (Int 2)

There was consensus among all the participants in interview (Int) 2, when a participant expressed a sentiment which resonated with them all about how effectively they worked together as a team:

I think it helps where everyone works so well in the team though, because if you're if it's one of your ladies that you're supposed to be seeing, but you're busy and you're out doing something else, something happens, another member of the team will go out and see that person for you, it won't be left or you won't be dragged back from something ... people will help each other, pick things up and do all the paperwork ... that needs doing for somebody else, even though it's on top of whatever else you're doing. (Int 2)

*But then the team is amazing, even everyone's crazy busy, because we've got all this extra stuff to do, and no one's quite sure how it's all going to work ... erm ... I think everyone just works really well together, er ... even if thought you've got no idea what you're doing one day, and the next day something else ... somebodies' there and can talk to them. (*Int 1)

Breaking down barriers: Data illustrates that practitioners are acutely aware of the value of breaking down barriers with other professions and how this work contributes to overall effectiveness of the service:

Erm, I still think there is lots of work to do in terms of being visible and the relationships that are essential with our colleagues and other services right across secondary and primary care and GPs, and midwives and health visitors,

there is actually a lot of people out there and a lot of services that need to know about us and vice versa, we need to know about them. (Int 1)

However, it was clear in the data that practitioners already perceive different aspects of their day to day service delivery to play a part in strengthening partnerships with other professions. This contributes to the overall effectiveness of the service:

I think it's because you have the capacity to go over to the hospital with people, and you know and do those joint appointments and erm ... you know with obstetricians, you know with the midwives, whereas in other teams, you don't have that capacity to be able to do that and to be able to support the women that way. (Int 2)

Seeing what the service can achieve: This theme is constructed from the accounts of practitioners in relation to the visible impact of the service on the health and wellbeing of women. Much of the discussion points within the interviews were concerned with aspects of the job/role that they found **r**ewarding and how they quantify success:

Which clearly always is going to be important, but I guess maybe never more so than at this kind of time... you now in their life, because that's what's reflected back from patients a lot. That's the kind of feedback I tend to hear, how they feel about, that the staff in this team... and that could be any member of staff, that they feel that everybody is really kind of genuinely interested and understands; and really puts a lot of effort in to making them feel erm ... comfortable I suppose and to talk to them, that's generally the kind of feedback I get. Then, they tend to say things like... I tell everybody ... I tell all my friends about it (Lots laughter in room) you know it's nice to hear, although not everybody's friends are going to be appropriate for referral. (Int 2)

And it's that feedback that you hear, that I think is most important. It's that person sitting in front of you, is telling you. It's about the changes, you know they've experiences, the improvements. (Int 2)

Key themes in relation to the challenges to delivering an effective service were as follows;

- Inadequate funding at a time of increasing demand
- Recruitment and training
- Finding new ways of working

Each theme is discussed in detail below and supported by a narrative.

Inadequate funding at a time of increasing demand: Data suggests that practitioners perceived limited funding for a time limited roll out of the new service model (October 2018-January 2020). This included an enhancement of the current PMH provision as well as the new service provision. Patient, practitioner and funder expectations of the service led to increased demand:

> *For me it's all the referrals that we get since the launch, we are getting a lot more referrals in aren't we; we've gone from three assessments in two weeks to four a week now. I think it's quite fab really for those ladies, but I don't know how we are going to staff.* (Int 2)

Recruitment and training: There were many challenges for recruitment to the various specialist posts to deliver the new service. Ongoing recruitment and retention issues had subsequent effects on the launch of the service, and its availability. Furthermore, training for new practitioners was felt to be compromised, as a result of ongoing recruiting issues:

> *So, in terms of staffing, we weren't staffed, urm I guess, as a service, regardless of whether your staff are actually through the door or not, there is something about induction and ensuring that staff feel competent and confident to go out and do the job they are meant to be doing because it is a really complex patient group, it's not just the women, it's the family, it's the baby it's the children, so there's all that investment that I think we take seriously in this team where other teams.* (Int 1)

Finding new ways of working: Data suggests that there were opportunities and challenges to developing new roles and responsibilities. Whilst the range of interventions which were possible within the new model were enthusiastically embraced, this raised the issue of how effective the current systems were, for example, the appointments systems. All agreed that a more multiprofessional team - could offer more focused mental health care packages. However, the logistics of geographical spread and travel were a challenge:

Then there were all the challenges around [pause] who, who was going to be responsible for the service, who was responsible for what staff ... once we got over the shock of what area we would be covering ... (Int 1)

DISCUSSION

The new service aimed to provide accessible and effective treatment for women with moderate to severe perinatal mental health problems. The extent to which the service achieved these aims will be discussed, and ways in which the service could be improved and expanded going forward will be considered.

The recovery rates/improvements in scores are evident in all outcome measures, with 38 out of 40 women showing higher scores using the ReQoL, 36 out of 40 women showing improved scores on the CORE-10, 36 out of 40 women showing improved scores on the EPDS, and 36 out of 39 women showing improved scores on the POEM. The sample was small (n = 40). Future work would benefit from larger sample sizes and moving forward, the PMH service should focus on the development of strategies aimed at improving data collection. The patient reported outcomes of the 40 women who completed treatment may not generalise to the broader group of women in need of PMH support across the area. There are still many unknowns about the women for whom completed booklets were not received, for example, they may have been non attenders or non completers or both. In subsequent years, the service should consider strategies to ensure a higher completion rate, and may want to consider an internal audit to explore this in more detail. Strategy or a standard operating procedure is required to ensure complete data are collected on assessment and the reason for any deviation from this should be detailed and recorded for further review. Limitations on generalisation of the findings due to missing data requires redress within the context of evidence-based service delivery.

This work was undertaken as an evaluation to assess the impact of the specialist service on women with severe and complex PMH problems, and to inform decision making for ongoing sustainability. Combined data from the outcome measures, the Perinatal POEM, alongside qualitative findings from the practitioners themselves suggests that engagement with the service has made a positive difference to women's wellbeing. Without a control group however, it is impossible to determine the significance of the intervention (the specialist

service) in terms of mental health and wellbeing. Measuring outcomes is crucial to being able to understand the effectiveness of care[11] and the implementation of measures in this evaluation demonstrates that the service is now able to illustrate improvements in health and wellbeing through data capture, and reflects a move towards evidence-based service delivery.

When exploring the contributors and challenges to effectiveness of the service from the perspective of those working within the specialist team, several key themes were identified. In relation to contributors to the effectiveness of the service, consistency in direction during times of change was heavily influenced by highly productive team working, which was evident across the interviews. Furthermore, team working was significant in breaking down barriers between practitioners, as the new and enhanced service transitioned. Consistency in priorities during times of change ensured a consistent message was provided to both the existing and the new provision. During times of transition, holding onto a clear and shared vision helped relieve the stress associated with change at such a scale. The consistent message focused on the importance of putting women first, and giving women the time that they require. This message came from the existing practitioners and helped new practitioners to focus on the service objective. Team working was influenced by how practitioners supported each other and were compassionate towards one another in times of transition. Effective team working enhanced motivation and enabled others to work towards a common goal, particularly during times of 'set back' – such as the recruitment challenges and the subsequent increased workload. The commitment and work ethos of existing practitioners inspired new members of the team to ensure a high level of service for women. Practitioners recognised the benefits of working collaboratively – an element of working within the specialist PMH teams, underpinned by effective team working. The interviews illustrated how this collaborative work contributed to a sense of overall effectiveness of the service. It is evident that greater understanding of individual roles and responsibilities and of the service that is on offer, will continue to contribute to more effective seamless and timely referrals, and may help to address some of the issues identified in the POEM around the delays in being referred and the delays in receiving help. As with all changes, the PMH service expansion and enhancement period presented challenges for the specialist PMH team. Recruitment being one of the most significant.

Ongoing recruitment and retention issues had subsequent effects on the launch of the service, and a knock-on effect on who could refer into the service. Furthermore, data suggests that for some, the time for training and support for practitioners within the team was compromised because of ongoing recruitment issues. Team working and collaborative working, across the geographical area helped to mitigate some of these challenges. Despite the challenges, a new service became accesible to women, and there was a constant review of referral pathways. At all times, the team demonstrated the commitment to deliver a service for women.

CONCLUSION

The recovery rates observed across all outcome measures, and the positive experiences expressed by women who have used the service suggest that the service is meeting the ambitions of the Five Year Forward view for mental health; a key objective of the enhanced and expanded PMH service identified during the WAVE 2 funding application process. The findings illustrate that when women can access appropriate, high quality specialist mental health care closer to home, they have an overall positive experience and benefit from joined up services around them, they are provided with a service that clearly focuses upon recovery, and consequently, fewer women and infants will suffer avoidable harm.

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Contributions to authorship:

CJ: Conception, study design, project planning, overall project management, data collection, data analysis, drafting, proof reading and editing and submission of full manuscript.

JJ: Conception, project planning, critical review of the full manuscript.

CRM: Conception, study design, statistical analysis plan, proof reading and review of full manuscript.

JW: Study design, data collection and analysis, contribution to manuscript and proof reading.

CM: Study design, quantitative data collection, contribution to manuscript and proof reading.

FW: Data collection, data analysis, contribution to manuscript and proof reading.